



Making the most of ESPC's

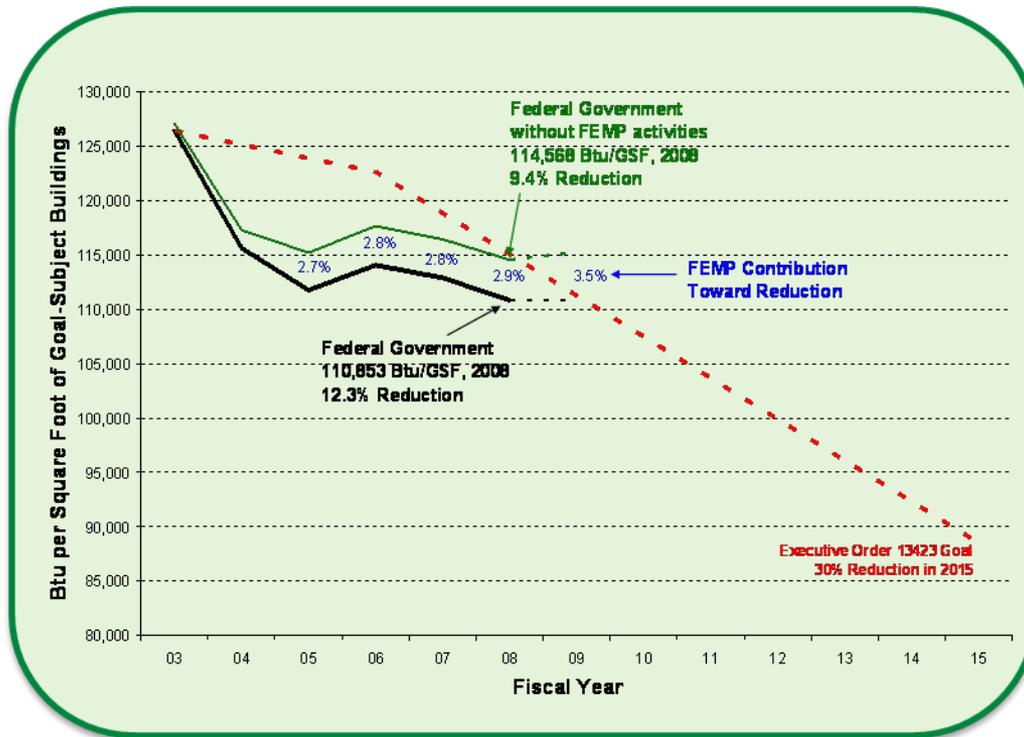
Richard Kidd



Program Manager

MISSION : *FEMP facilitates the Federal Government's implementation of sound, cost-effective energy management & investment practices to enhance the nation's energy security & environmental stewardship*

FEMP *Saves* Federal Energy:
50+ Trillion BTU or almost 25%
of ALL Federal Improvement



FEMP is a service, not a research organization

FEMP has strategic reach into ALL Federal Agencies

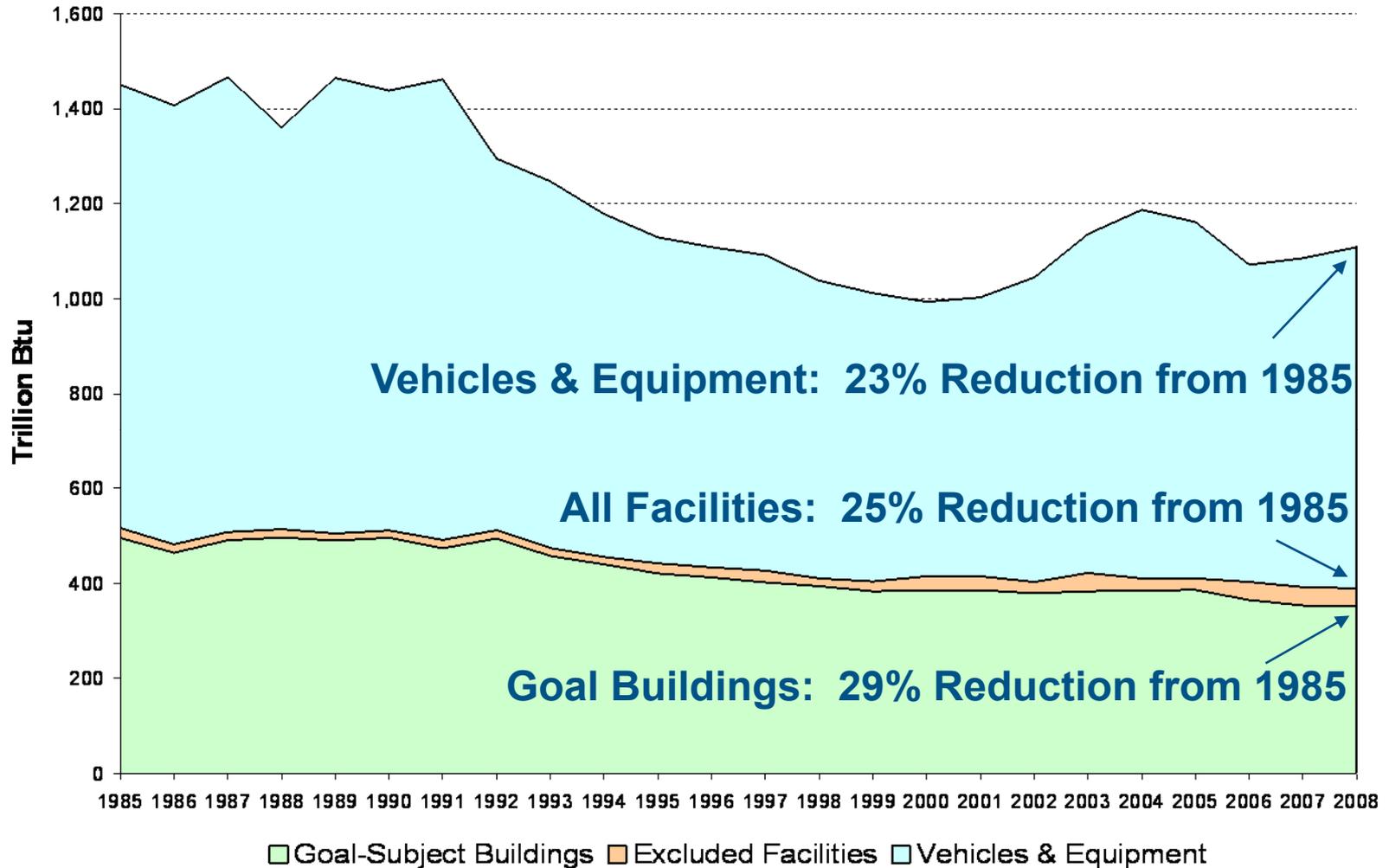
FEMP activity is demand driven, based on:

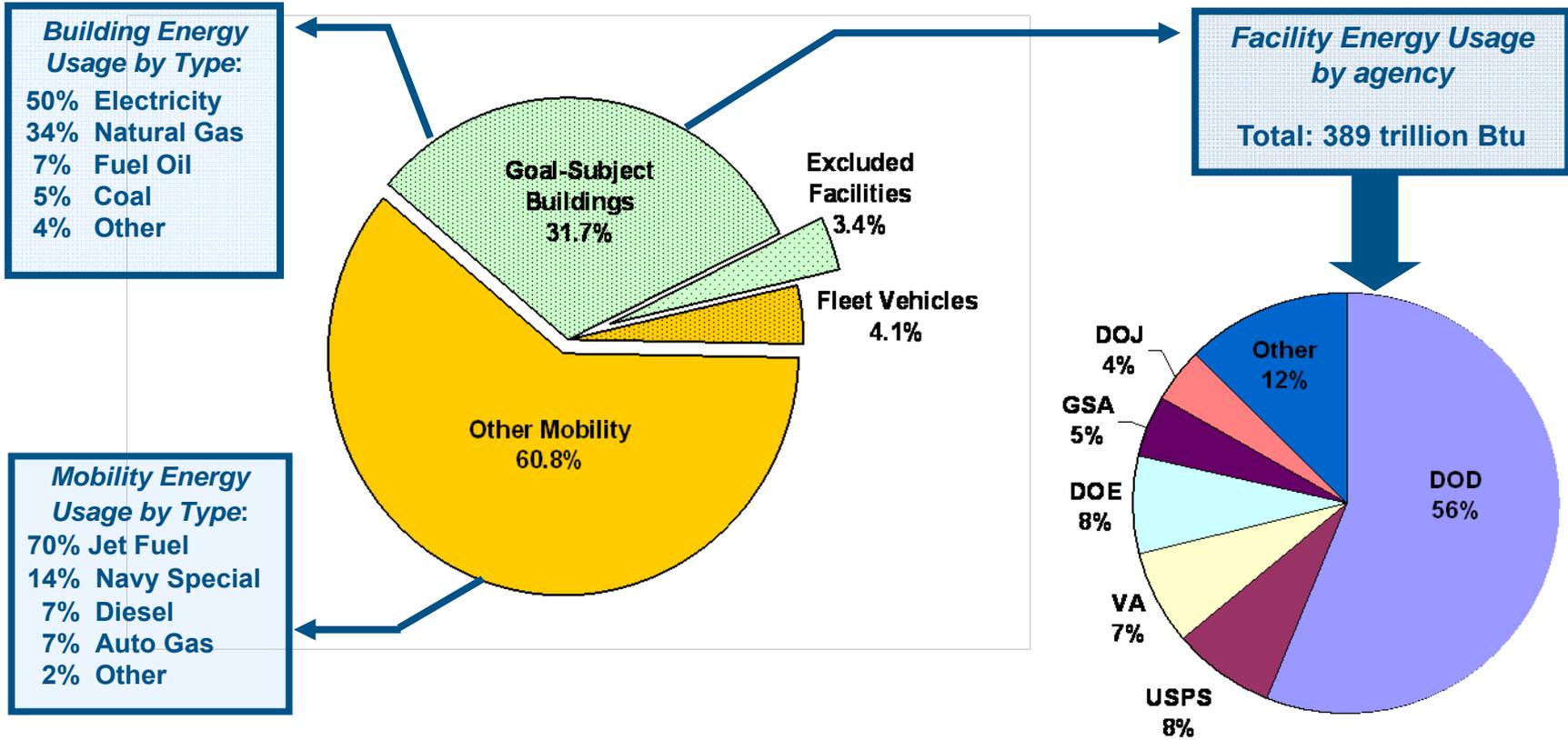
- Total USG investment levels in energy efficiency/renewables
- Actions of other agencies

FEMP expands impact of USG investments:

- **Reduces** transaction costs & time to deployment
- **Accelerated** U.S. Government adoption of EERE technologies

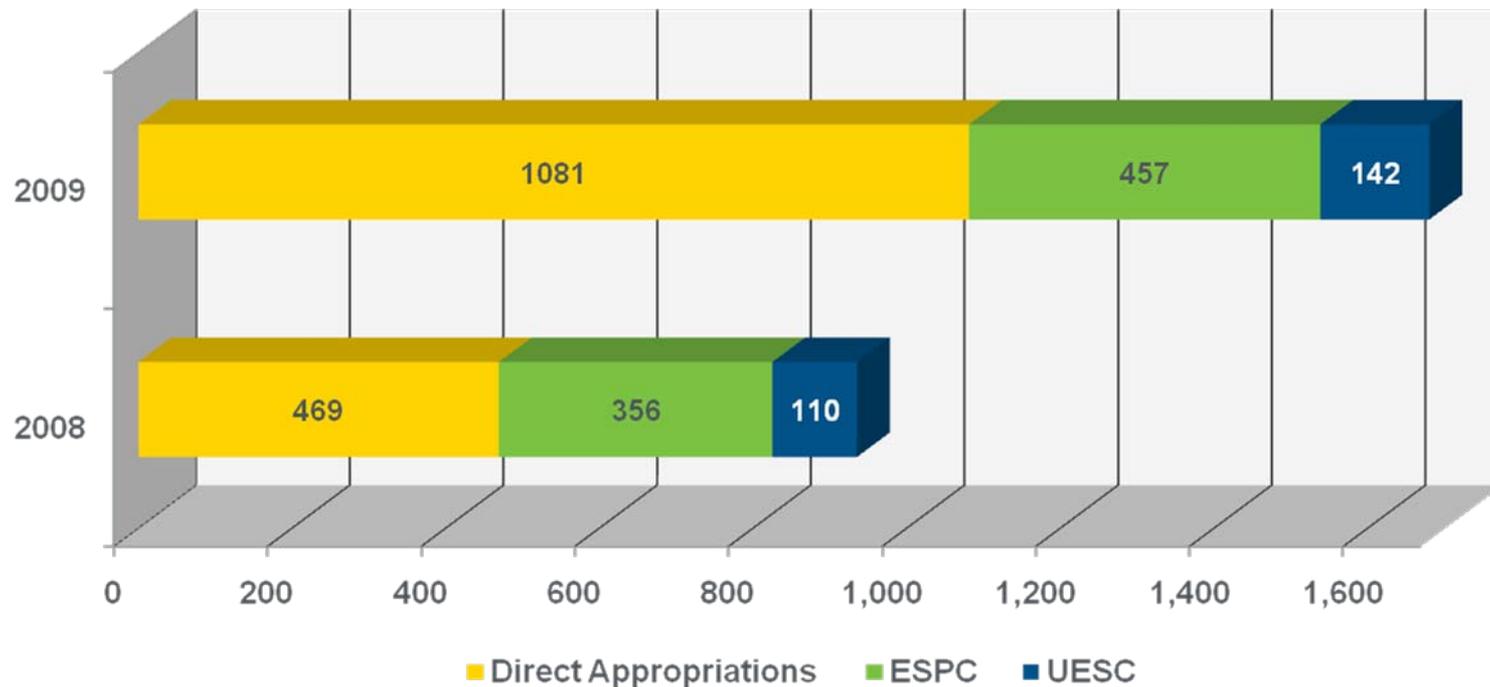
History





The Federal Government *operates* over 500,000 facilities (3 billion sq ft) & consumes 1.6% of the Nation's total energy use, or \$24.5 billion in annual energy costs

From FY 2008 to FY 2009, the Federal Government realized an **84%** increase in investment in Federal facilities energy efficiency projects



President Obama: *E.O. 13514 Signing Ceremony*

January 29, 2010

President Announces
Federal Agency
28 % GHG Reduction
Targets by 2020:

- ✓ Spur clean energy investments
- ✓ Create new private-sector jobs
- ✓ Drive long-term savings
- ✓ Build local market capacity
- ✓ Foster innovation
& entrepreneurship
in clean industries



Federal Goal

*Reduce Federal energy use by
equivalent of 656 TBtus =*

- 205 M barrels of oil
- \$1B in avoided energy costs
through 2020



**Secretary Chu joins the President on October 5, 2009,
for the signing of Executive Order 13514 –
Federal Leadership in Environmental, Energy &
Economic Performance**

Secretary Chu commits DOE expertise & leadership

Goal/Requirement	Metric
GHG Emissions: (EO 13514) Baseline Scope 1, 2 and 3 FY 2008 emissions and set targets for 2020 reduction	Absolute agency MTCO ₂ e
Energy Consumption: (EO 13423/EISA) Reduce energy intensity by 3% annually compared to 2003; 30 percent reduction required in 2015	Btu per square foot of covered (non-excluded) facility space
Water Consumption: (EO 13514) From 2007 baseline, 2% annual reduction in potable water intensity by FY2020 or 26% total reduction and 2% annual reduction in industrial, landscaping, and agricultural water intensity by FY2020 or 20% total reduction	Kgal per square foot of facility space (no exemptions)
Renewable Energy: (EPACT/EO 13423) Use renewable electric energy equivalent to a least 3 percent of total electricity use; at least half of which must come from sources developed after January 1, 1999	Absolute Btu as a % of total energy consumption
Vehicle Petroleum Reduction: (EO 13514) 2% covered vehicle petroleum reduction annually through FY2020 (Baseline FY2005)	Absolute annual GGE as % of 2005 use in covered vehicles
Alternative Fuel Use: (EO 13423) 10% increase in non-petroleum fuel annually, baseline FY2005; use plug-in hybrids	Absolute annual GGE as % increase from prior year
New Buildings: (EO 13514) All new agency construction and renovation complies with the Guiding Principles; (EISA) New federal buildings zero-net by 2030	Impact metric which annually assesses compliance
Existing Buildings: (EO 13514) 15% of existing Federal building inventory meet the Guiding Principles by FY2015, continue towards 100% building inventory	% of facility square feet evaluated an in compliance

FEMP's role is to...

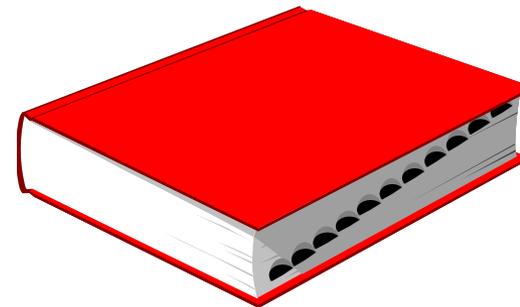
- Help Federal agencies identify, obtain & implement alternative financing to fund energy projects
- Match the right funding option with the specific project need

In general if agency has the funds, projects will be direct funded
Additional options include:

- Energy Savings Performance Contracting (ESPC)
- Utility Energy Savings Performance Contracting (UESC)
- Public Benefit Funds
- Power Purchase Agreements (PPA)
- Enhanced Use Leasing (EUL)

<http://www1.eere.energy.gov/femp/financing/mechanisms.html>

Definition *ESPC is a no-upfront-cost contracting method. The contractor incurs the cost of implementing energy conservation measures (ECM) and is paid from the energy, water, wastewater and operations savings resulting from these ECMs.*



“Appropriations should be requested in annual budget requests and prioritized for application in projects or measures that do not generate savings sufficient to support private sector financing or for application as cost share to ESPCs/UESCs so that larger, more comprehensive projects can be undertaken.”

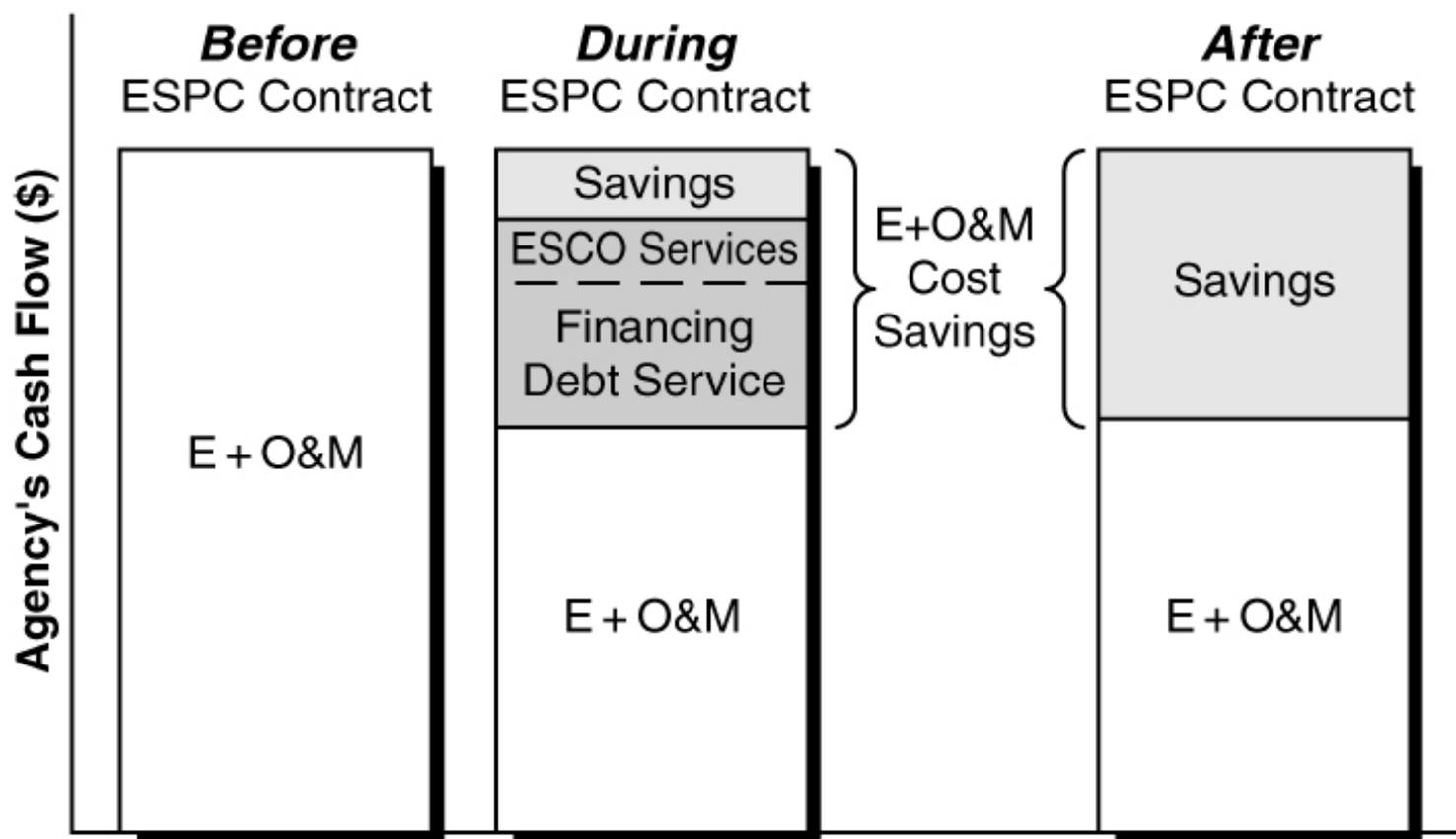
- OMB Instructions to E.O. 13423

In other words: Exhaust private financing opportunities before using scarce appropriated funds; reserve appropriated funds for things that don't self-fund.

Reallocation means:

✓ **Stop paying for waste & pollution**

✓ **Start paying for efficiency!**



Internal Audits Show Projects Exceeding Guaranteed Cost Savings

- Reported savings average 107% of guaranteed savings
- Based on a random sample of 22 projects analyzed in 2007, cost savings based on actual rather than contract utility rates were 110% of reported savings
- Assuming energy savings are as reported, actual cost savings are about $(1.08 \times 1.10) = 119\%$ of guaranteed savings on average

- **Awarded December 2008**
- **16 ESCOs (energy services companies)**
- **Emphasizes renewables**
- **Worldwide**
- **Allows for wide array of technologies—energy, water, & utility rate savings**
- **Full competition achieved**
- **Standardized terms & conditions for all ESCOs**

http://www1.eere.energy.gov/femp/pdfs/generic_idiq_espc_contract.pdf

New Contract Emphasizes Renewables

- **Boiler & chiller plant improvements**
- **Building automation & energy management control systems**
- **Lighting improvements**
- **Building envelope modifications**
- **Chilled/hot water & steam distribution systems**
- **Electric motors & drives**
- **Refrigeration**
- **Non-building applications (e.g., Hydro-dams, fleet)**
- **Advanced metering systems**
- **Appliance plug load reductions**
- **Renewable energy systems**
- **Energy & utility distribution systems**
- **Water & sewer conservation systems**
- **Electrical peak shaving & load shifting**
- **Energy cost reduction through rate adjustments**
- **Energy related process improvements**
- **Distributed generation**
- **Commissioning**
- **HVAC**



MEMORANDUM OF UNDERSTANDING BETWEEN DOE FEMP & STATE DEPT. BUREAU OF OVERSEAS BUILDINGS OPERATIONS *January 2009*

“To meet these requirements, it is estimated that approximately 40 to 50 facilities per year will undergo energy audits to find energy and water conservation and renewable energy opportunities. OBO has asked FEMP for assistance in developing and managing this crucial effort.”

- Commits to further OBO’s efforts to meet statutory & E.O. goals at diplomatic & consular missions
- Emphasizes use of third party financing, a FEMP specialty
- Calls for FEMP assistance with OBO audits

DOE can help through OBO or directly to DOS post

FEMP can help with decisions:

- ESPC: yes or no?
- What are your alternatives?

FEMP can help with projects

- **Transactional:** Procurement assistance
- **Technical**
 - Make sure your project works
 - Make sure project meets your needs

Audits Completed with FY 2008 and FY 2009

Scope of Work:

- Santiago, Chile
- San Salvador, El Salvador
- Stockholm, Sweden**
- Frankfurt, Germany**
- Munich, Germany**

Audits Proposed for FY 2010

Scope of Work:

- Accra, Ghana
- Lagos, Nigeria
- Guatemala Ciudad, Guatemala
- San Jose, Costa Rica
- Calcutta, India
- New Delhi, India
- Chennai, India

Pilot Program

- **FEMP offers NREL's service to DOS**
- **NREL performs site audits to identify ECMs**
- **NREL prepares site data package (SDP) for each DOS site**
- **SDP can be used to solicit ESPC under IDIQ contact**

****audit draft under review by DOS**

Site Description: U.S. Embassy, Santiago, Chile

- 122,700 SF Facility
- 3.475 million kWh annual consumption

Identified Conservation Measures and Paybacks:

Description	kWh/yr Savings	% Annual Savings	\$ Savings /yr	Simple Payback
HVAC System	491,605	14%	\$ 71,740	24.7 years
Lighting System	160,547	4.6%	\$ 27,583	8.2 years
Motors	35,244	1.0%	\$ 6,344	5.2 years
Plug Loads	266,342	7.6%	\$ 46,427	11.5 years
Renewables	158,102	4.5%	\$ 52,361	23.3 years
TOTAL	1,111,840	32.0%	\$ 204,455*	18.4 years

Bottom Line: Saving *32% of annual energy use* & *\$ 204,455** using today's cost of electricity.

*Savings don't take into account the interactive effects of implementing measures as a single package.

*Savings reflect energy cost savings less O&M costs.

Mission: *Provide DOD & other government agencies with comprehensive energy solutions in the most effective & economical manner possible.*



Installation Energy

- ESPCs via the DOE Super ESPC program
- On-site renewables
- Competitive (liberalized) electricity acquisition
- Competitive natural gas acquisition

Dedicates internal resources to provide contracting expertise for DOD & Federal civilian agencies

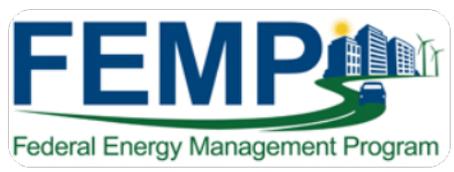
Supports long-term alternatively financed agreements stemming from on-site renewable energy project development

- Works with agencies to develop requirements for:
 - Energy savings performance contracts
 - On-site renewables (solar, wind, geothermal & hydro)
- Teams with DOE for technical expertise assistance
- Works with partners to develop lessons learned & best practices for long-term contracting support



GovEnergy 2010
Great networking opportunity!
August 15-18
Dallas, TX

LABS 21 Conference
Great Networking Opportunity!
September 28-30, 2010
Albuquerque, NM



Website

- www.femp.energy.gov

For Direct Project Assistance:

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